DOCUMENT RESUME

ED 323 227 TM 015 430

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TITLE Comparative Performance of Florida Seniors on the GED Test Battery.
SPONS AGENCY Florida State Dept. of Education, Tallahassee. Bureau of Adult/Community Education.
PUB DATE 85
NOTE 17p.; For a summary of this study, see ED 291 890.
PUB TYPE Journal Articles (080) -- Reports - Research/Technical (143)
JOURNAL CIT Florida Journal of Educational Research; v27 n1 p27-41 Fall 1985

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Achievement Tests; Comparative Testing; *Equivalency Tests; Functional Literacy; Grade 12; Graduation Requirements; High School Equivalency Programs; High Schools; *High School Seniors; Mathematics Tests; *Performance; Reading Tests; Science Tests; Social Studies; State Norms; State Programs; Testing Programs; Test Norms; *Test Results; Writing Tests
IDENTIFIERS Florida; *Florida State Student Assessment Test Part II; *General Educational Development Tests

ABSTRACT

Two studies investigated the performance of Florida high school seniors on the Tests of General Educational Development (GED Tests). The GED Test Battery, as revised in 1980, consists of 290 items in 5 subject areas (writing, social studies, science, reading, and mathematics). In the first study, the performance of 1,200 Florida students was compared to national GED Test norms. Mean scale scores were higher for Florida students than for the national norm group on all tests, and noticeably higher on the mathematics and science tests. The second study compared the performance of 946 of these students on the GED Tests with their performance on the Florida State Student Assessment Test--Part II (SSAT-II), a test of functional literacy that Florida students must pass to earn a high school diploma. An analysis of the relationships between the test results indicated that students who could not pass the SSAT-II could not pass the GED Tests. Students who are taking and passing the GED Tests are evidently not students who are failing in school. Six tables contain the findings from both studies. (SLD)

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COMPARATIVE PERFORMANCE OF FLORIDA SENIORS ON THE GED TEST BATTERY

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Florida Journal of Educational Research
Fall 1985, Vol. 27, No. 1, Pp. 27-41

Comparative Performance of Florida Seniors on the GED Test Battery

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ABSTRACT. Two separate studies are reported. The first compared Florida students' performance on the GED to national GED norms. Results indicated that Florida students compare quite favorably. Mean scale scores were higher for Florida students than the national norm group on all tests and noticeably higher on the science and math tests. The second study compared Florida students' performance on the GED with their performance on the Florida SSAT-II. Results indicated that students who cannot pass the SSAT-II are unlikely to succeed on the GED.

The State of Florida began awarding high school diplomas through the General Educational Development (GED) Testing Program in 1946. By 1951, any Florida resident, age 20 or over, could earn such a diploma. Today, the test may be available to eligible candidates, age 16 or over, depending on policies established by local school boards. The content of the GED tests is intended to represent a sample of the expected outcomes of four years of high school instruction. The GED Test Battery, as revised in 1980, consists of 290 items in five subject areas.

This study was conducted by the author under contract with the Bureau of Adult and Community Education, Florida Department of Education. The opinions expressed in this article are those of the author and should not be construed as the opinion or policy of the sponsor.

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In 1982-83, several questions were raised by Florida legislators, and others, pertaining to who was taking the test and, in the case of high school age participants, what levels of ability were represented. Also of interest was the performance of Florida high school students on the tests compared to national norms, and a comparison of performance on the GED Battery and the Florida SSAT-II test. The purpose of this article is to describe two studies, one comparing Florida students' performance to national norms. The other study describes the comparison of GED performance with performance on the Florida SSAT-II test.

Norming Study

Of interest in this study was how Florida seniors performed on the GED tests. National norms exist, and Florida students participated in the 1980 norming study conducted by the GED Testing Service. However, a question was raised regarding how seniors in Florida high schools performed on the tests--did they do better or worse than the performance represented by the norms?

To investigate this question, a sample of seniors participated in a testing program in the spring of 1984. The students were located through the use of a two-stage sampling procedure designed to provide a broad, representative sample of Florida's high school seniors. Using figures from 1982-83, the proportion of high school graduates in each of five geographic regions was determined. Within each region, all public schools enrolling seniors in 1983-84 were listed, with the approximate numbers of seniors noted. Schools were selected randomly from within each region, and numbers of students to be tested were determined using the proportions mentioned above. One restriction was that no school would be included where the number of seniors was less than 15. This was done so that testing, which was administered by local GED personnel, could be done in an efficient manner.

Letters were sent to principals of the sixty high schools selected explaining the norming project and inviting their participation. Six schools elected not

to participate and alternate schools from the region were selected and invited to participate.

Administrators were asked to select the required number of students from their school according to a random sampling procedure provided to them. The original sample included 1578 students from 57 schools in 30 districts. As is the case in any voluntary testing project, the number of students from whom usable test results were obtained was less than the number anticipated; the actual number tested was just over 1200.

The distribution of students according to race and gender compares favorably with figures for the Florida high school population. Responses were obtained from 73 percent Caucasian, 16 percent Black, 10 percent Hispanic, and the balance "other". There were approximately 46 percent boys and 54 percent girls who participated in the testing.

The proportions in the final sample were close to the anticipated figures in three of five regions. One region was below expectation due to the drop-out of one district at a time which was too late to enable replacement. This allowed another region with larger districts to reflect a higher-than-expected proportion of the total sample. In general, the students who were tested represent a wide range of high schools throughout the state. All regions are represented, with approximately the proportions of seniors which they enroll. Large schools, small schools, urban schools, and rural schools are represented. Hence, one would conclude that a representative sample of Florida's seniors was involved in the testing project.

Because of the length of the GED battery, the decision was made to ask each student to complete two tests rather than all five. This would limit the testing time to one full morning and would probably eliminate most of the motivational problems one would encounter if the students had been asked to complete all five tests. With five tests, there are 10 different pairs of tests which could be administered. These sets were defined and distributed over the state. The numbers of students completing each set and each test are reflected in Table 1. The order of

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Table 1

Numbers of Students Completing Combinations of the GED Tests

	Writing	Social Stud.	Sci.	Reading	Math.
Writing		130	122	160	122
Social Stud.			108	123	98
Sci.				118	113
Reading					110
Totals for each test	535	462	458	509	443

testing in each pair was reversed so that one-half of the students who took the science-math combination, for example, took the science test first; the others took the math test first. Similar patterns were followed for the other pairs of tests.

Answer sheets were sent directly to the GED Testing Office in Washington, D.C. for processing. Printouts and a data tape were returned to the investigator. Since no student completed the entire battery, score reports for individuals and schools were not produced.

Results

Means and standard deviations for the five tests and intercorrelations among the five tests were calculated in order to compare the Florida data with the national data. The national data were based on a sample of about 700 high school students tested in the spring of 1980. Because of the differences in time, sample sizes and test forms, some differences were expected.

These data appear in Table 2. The comparisons among means and standard deviations are based on standard scores. Hence all Florida values are compared to the national mean of 50 and standard deviation of 10. For all tests, mean performance of Florida seniors exceeded that of the national sample and the variability of scores was lower. For the writing, social studies, and reading tests, differences from the national norm are all less than one standard score point. While the differences are statistically significant, that significance is due, largely, to the sample sizes.

Of particular note are the means for science and mathematics tests. The science mean is 1.4 standard score units above the norm and the math mean is 2.6 units above the national norm. The content of these two GED tests is, perhaps, closer to what Florida students have been exposed to than is the content of the other three tests. Regardless, there is little doubt that the mean performance of Florida seniors exceeds that of the national sample, particularly in science and mathematics.

The intercorrelations, Table 3, indicate that performance over the battery is similar to that shown

Table 2

Means and Standard Deviations for the National Sample and Florida Sample (Standard Scores)

	National Sample	Florida Seniors				
		Writing	Social Studies	Science	Reading	Math
Mean	50	50.8	50.8	51.4	50.7	52.6
S.D.	10	9.8	8.5	9.1	9.5	8.2
N	700	535	462	458	509	443

Table 3

Correlations Among GED Tests -- National and Florida Samples (Standard Scores)

	Writing	Social Studies	Science	Reading	Math
Writing		.75 (130)	.76 (122)	.81 (160)	.74 (122)
Social Studies	.72		.80 (108)	.81 (123)	.80 (98)
Science	.70	.79		.78 (118)	.58 (113)
Reading	.72	.77	.74		.68 (110)
Mathematics	.62	.67	.67	.62	

Values above the diagonal are correlations for Florida seniors. Numbers in parentheses are sample sizes.

Values below the diagonal are correlations for the national sample, N=683 for all values.

for the national sample. In most cases, the differences are small and all differences between the Florida and national values are statistically non-significant. The differences involving the math scores for Florida students and the writing and social studies test scores are noticeably higher than the comparable national values. The math-science correlation is the only value lower than its comparable national value. Since the math and science test means were higher than the national values and the math test standard deviation is much lower than the norm, the restricted range for the math test probably accounts for the observed differences.

Another method for comparing performance between groups is to examine relative percentiles. Table 4 presents such a comparison. Again, the national scale scores and percentile ranks are the same for all tests. One can select a scaled score for the national sample and observe the percentile rank for that score, which indicates the percent of students who scored below the selected score. Then, one selects one of the tests and determines the percent of Florida students who scored below that score. If the percent of Florida students is less than the percent for the national group, one concludes that Florida's students did better on the test.

For the math test, performance of Florida students at the upper score levels, representing the higher achieving students, is somewhat poorer than that of the norm group. For example, a scaled score of 60 for the norm group represents a point below which one expects to find 84 percent of the scores. For the Florida sample, the actual percents were 85, 87, 85, 87 and 81 for the five tests. Hence, for only the math test was the performance better at this point. From the mid-point down, a scaled score of 50, representing the mid-level and lower achieving students, performance of Florida's students was better than that of the national group on all tests except reading.

Table 4

Comparison of National and Florida Percentiles for Selected Scale Scores

Scaled Scores	Nat. Percentile	Florida Percentiles				
		Writing	Soc. Stud.	Sci.	Reading	Mathematics
80	99	99	--	--	--	--
75	99	99	--	--	--	--
70	98	99	99	99	99	99
65	93	93	94	94	93	95
60	84	85	87	85	87	81
55	69	74	70	70	74	66
50	50	46	51	44	47	42
45	31	28	26	21	31	18
40	16	14	12	14	18	7
35	7	6	2	6	5	2
30	2	3	1	1	1	1
29	1	2	1	1	1	1
20	1	1	1	1	1	1

Summary

The question under consideration was how Florida seniors' performance would compare with that of the national norm group on the GED test. In general, it appears that Florida's seniors compare quite favorably. Mean scale scores were higher than the national norm on all tests and noticeably higher on the science and math tests. Performance in the upper score ranges on the writing, social studies, science and reading was slightly less than that of the national sample, but from the mid-point down, Florida's seniors out-performed the national group.

Of particular interest is the cut-off score of 40 on the tests, that is used in determining eligibility for the GED diploma. For the national sample, this represents the 16th percentile, i.e., 16 percent of the group would be expected to earn scores below this point on each of the tests. For the Florida sample, the equivalent percentiles for the five tests - writing, social studies, science, reading and mathematics - were 14, 12, 14, 18 and 7. Hence, it would appear that Florida students are close to the national values expected at the cut-off score on writing and science, find the reading test more difficult, and do better on social studies and math. In fact, they do much better on math, at the cut-off score.

SSAT-II STUDY

Another question had to do with how performance on the GED tests would compare with performance on the Florida State Student Assessment Test, Part II. The SSAT-II is a test of "functional literacy," and Florida high school students must earn a passing score on this test in order to earn a diploma. The passing score is determined through a statistical equating process, but is roughly comparable to the 70th percentile. Would students whose scores were below the GED cut-off of 40 for each test earn "passing" scores on the SSAT-II? Would students who had low scores on the SSAT-II be able to meet the cut-off scores on the GED tests?

To answer these questions, a computer tape containing the names of the 1206 students who took part in the norming study was delivered to the Department of Education. The names on the tape were compared with SSAT-II test administration tapes for the appropriate period of time. Identical name matches were sought and comparable first attempt scores for students were recorded. A name match was found for about 60 percent of the students on the GED roster on the initial computer run. Printed lists were then produced and compared, visually. Names that were comparable were checked for birth date, gender and school membership. Students in the age range under consideration are notorious for changing first names, making exact matches on name only difficult - William becomes Bill, Elizabeth becomes Beth or Betsy, etc.

The matching process produced a total 946 matches out of the 1206 on the GED list, about 79 percent. Theoretically, an SSAT-II score should have been available for all seniors. In all probability, those who were not matched were in schools in other districts when they took the SSAT. The cost of searching many thousands of records in 67 districts was judged higher than the value of the records which would be found. The sample of matched records was judged adequate for the purposes of the study.

Results

Distributions were constructed to show the percent of students who scored below various raw score points for the communications and mathematics subtests since passing the SSAT-II is based on the percent of items answered correctly, which is then translated into a scale score system. The distributions appear in Table 5.

As can be seen, the proportion who had passed the communications subtest was about 96 percent, and the proportion of students who had passed the mathematics subtest was about 80 percent. The figures compare favorably with data from students who were tested prior to the spring of 1984, when a new version of the test was introduced.

Table 5

Percentile Distributions: SSAT-II Item Scores for Matched Sample

	Percentiles	
Number of Items	Communications	Math.
60	99	99
59	81	97
58	56	89
57	40	80
56	31	73
55	22	66
54	17	60
53	14	55
52	12	50
50	9	41
48	7	35
46	5	29
44	4	25
*42	3.5	20
40	3	15
35	2	7
30	1	2

*Approximate cutoff point - 70% of items

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Table 6

Intercorrelation Matrix: SSAT-II Item Scores with GED Scaled Scores

	SSAT-II Commun.	Math	Writing	Social Studies	Science	Reading	Math
Communication SSAT-II		.624	.47	.36	.45	.55	.25
Math	946		.55	.59	.63	.64	.58
Writing	398	398		.79	.76	.83	.79
Social Studies	369	369	94		.77	.80	.79
Science	369	369	85	98		84	63
Reading	392	392	129	89	89		65
Math	357	357	89	84	98	85	

Values below the diagonal represent the number of scores on which the correlation is based.

Intercorrelations for the SSAT-II subtests and five GED tests were calculated and appear in Table 6. Intercorrelations, means, and standard deviations for this subgroup were compared with the values for the larger sample (Table 3). Correlations differed only slightly, values of .01-.05, and were not statistically different. Means and standard deviations were also close to those of the larger group and not significantly different. Hence, one would conclude that the students in the matched sample were a representative group from the larger sample.

The correlations between the SSAT-II subtests and the GED tests are lower than one might expect. However, almost one-half of the students had communications scores of 58, 59 or 60, the maximum, and 25 percent of the students had mathematics scores of 56-60. Since correlations are affected by a restriction in range for either variable, the high proportion of high scores undoubtedly led to the lower estimates of correlation. For the combination of the communications subtest and the GED math test, there is a restricted range for both variables. The result is the low correlation of .25.

Given the size of the correlations between SSAT-II and the GED tests, the conclusions one may draw are limited. Knowledge of how one performed on the SSAT-II does not allow one to make accurate predictions about performance on the GED, or vice versa. However, the correlations are positive, though low, and it is fairly safe to predict that if a person's score on the SSAT-II, communications subtest, for example, was below passing, i.e., less than 42, or a scaled score of 700, the probability that their score on any of the GED tests would exceed 40, the minimum passing score, would be less than .25. With that probability for any of the GED tests, the probability of a person with low SSAT-II scores having an average of 45 and no score less than 40 is close to zero. This, then, is further evidence that students who cannot pass the SSAT-II have little chance of earning a GED diploma.

Summary

The focus of this study was on the performance of Florida seniors on the SSAT-II and the GED tests. The SSAT-II is a criterion referenced, minimum skills, test. It produces score distributions which are skewed and which have restricted ranges. An analysis of the relationships points, fairly clearly, to the conclusion that students who cannot pass the SSAT-II are unlikely to succeed on the GED. This conclusion agrees with that made in an earlier study (Stoker, 1984) that students who are taking and passing the GED are not students who are failing in school. The earlier analysis showed that students with low scores on district level tests had low scores on the GED. The later analyses show the same type of thing: those with low SSAT-II scores are unlikely to have GED scores high enough to allow them to get the alternate diploma.

Finally, it should be noted that students who took the GED and failed the test, i.e., did not have an average of 45 and no score less than 40, are not part of the GED samples used in this study. Students could have taken the SSAT-II and passed it while failing the GED. Hence, one could easily conclude that the GED is the more difficult test.

References

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